

# **7th International Artillery & Indirect Fire Symposium**



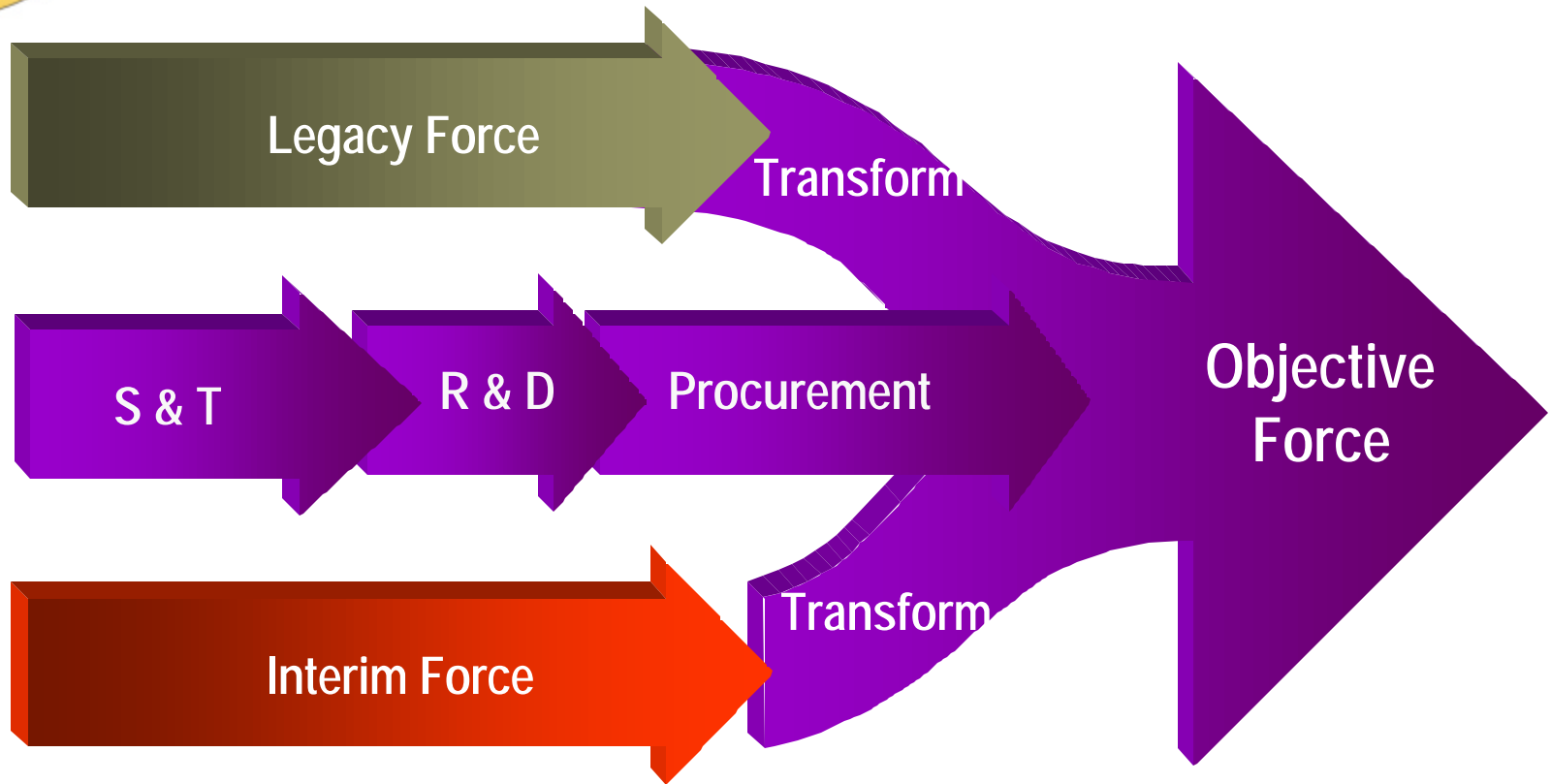
**COL Mike Cuff**  
**Chief, FDIC**

**18 June 2002**





# *Transformation Update*

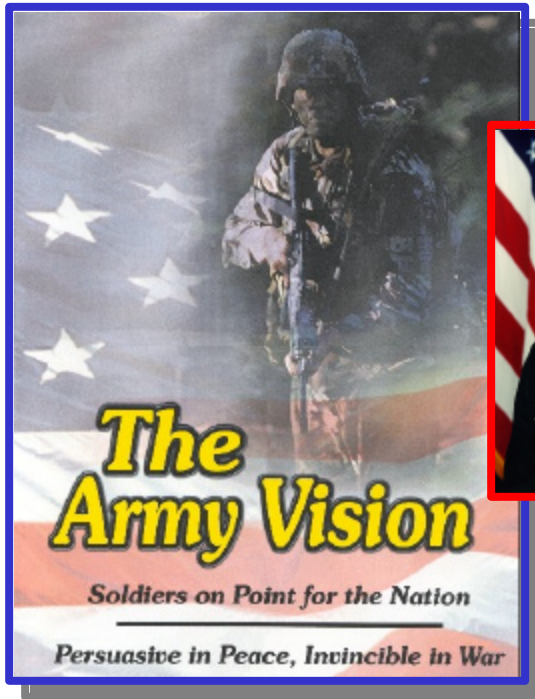


*COL Mike Cuff*

*Chief, Futures Development Integration Center  
U.S. Army Field Artillery Center*



# Fires and Army Transformation



"This is the most significant effort to change The Army in 100 years. Our aim is not a single platform swap out, but a system change and full integration of multidimensional capabilities – space, air, sea, land."

*"The hallmarks of Objective Force operations will be developing situations out of contact; maneuvering to positions of advantage; engaging enemy forces beyond the range of their weapons; destroying them with precision fires and maneuver, . . ."*

CSA White Paper, Concept for the Objective Force



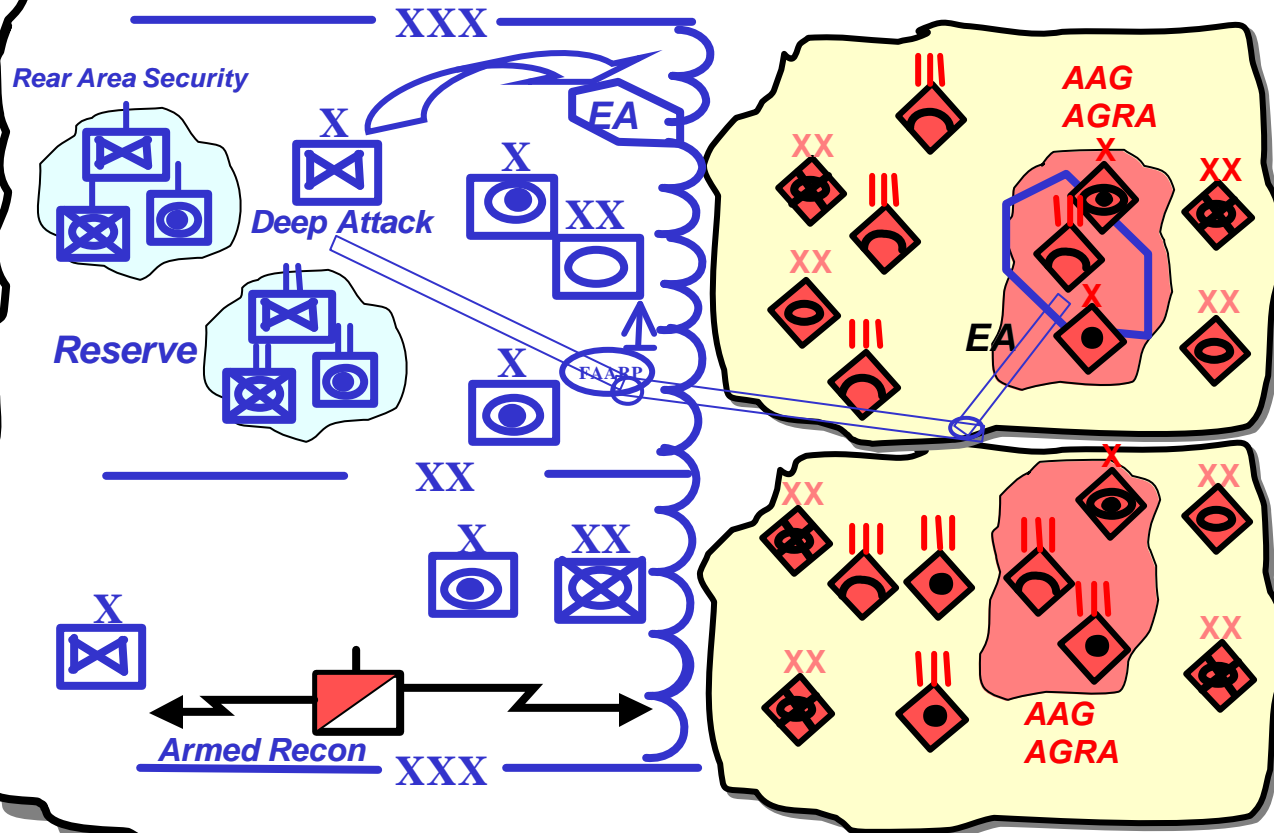
Transforming Fires  
for the 21<sup>st</sup> Century



# Yesterday's Paradigm

## Defensive Counterattack

## Offensive



## Roles

- Close Support Fires
- Counterfires
- Interdiction

## Conditions

- Linear battlefield
- Templated enemy artillery
- Massed formations in echelons
- Attrition focus
- Few restraints in collateral damage
- Combatants readily identifiable

## Threats

- Mortar and artillery attack
- Rocket and missile attack
- Enemy air
- Mech infantry and armor direct fires
- Dismounted forces
- SOF
- EW- Jamming Coms, Radars
- WMD



Transforming Fires  
for the 21<sup>st</sup> Century



# New Paradigm

Offensive

Defensive

## Enduring Functions

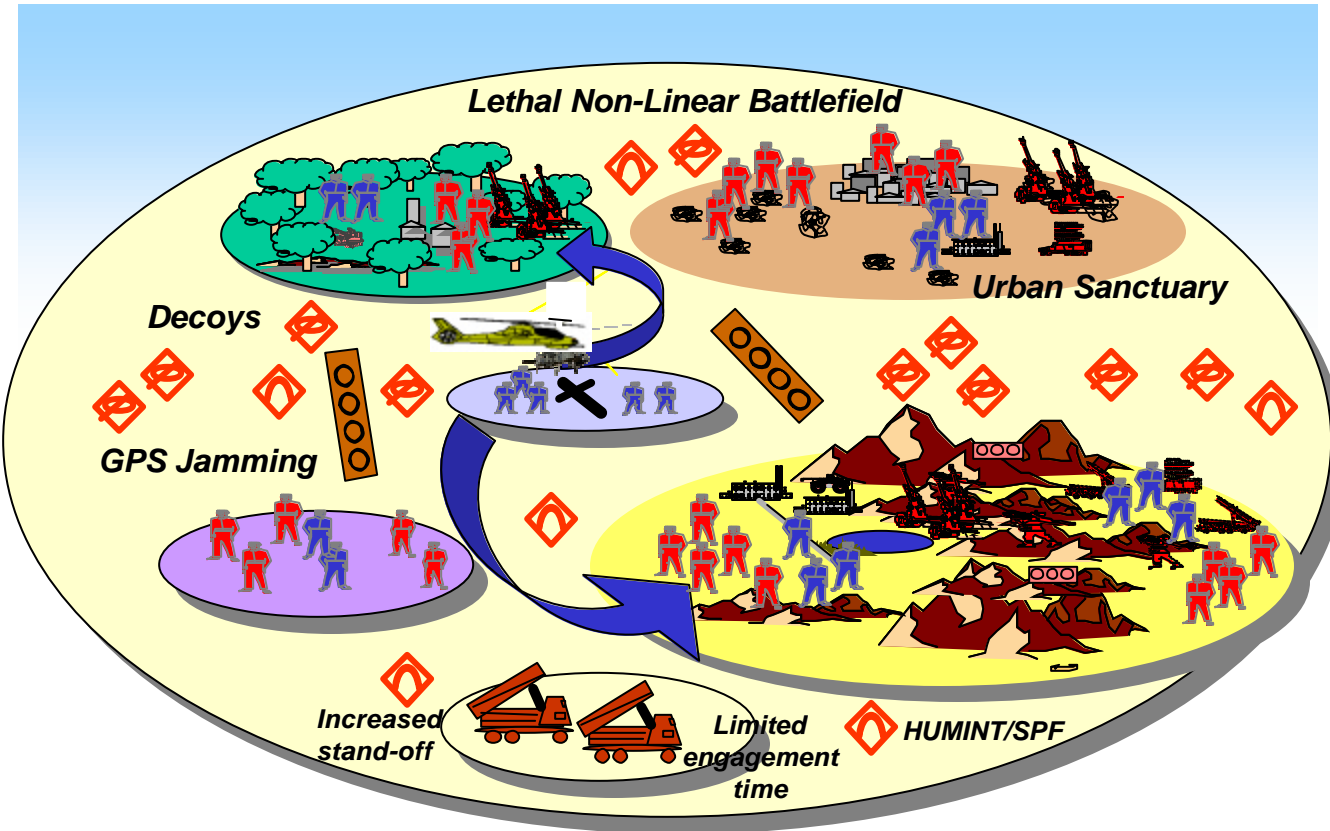
- Close Support Fires
- Counter Precision Strike
- Shaping Fires

## Conditions

- Non-linear battlespace
- Urban sanctuary
- Increased enemy range
- Limited engagement time
- Widely dispersed and smaller formations
- Precision munitions
- Enhanced TA and ISR
- Greater collateral damage aversion

## Threats

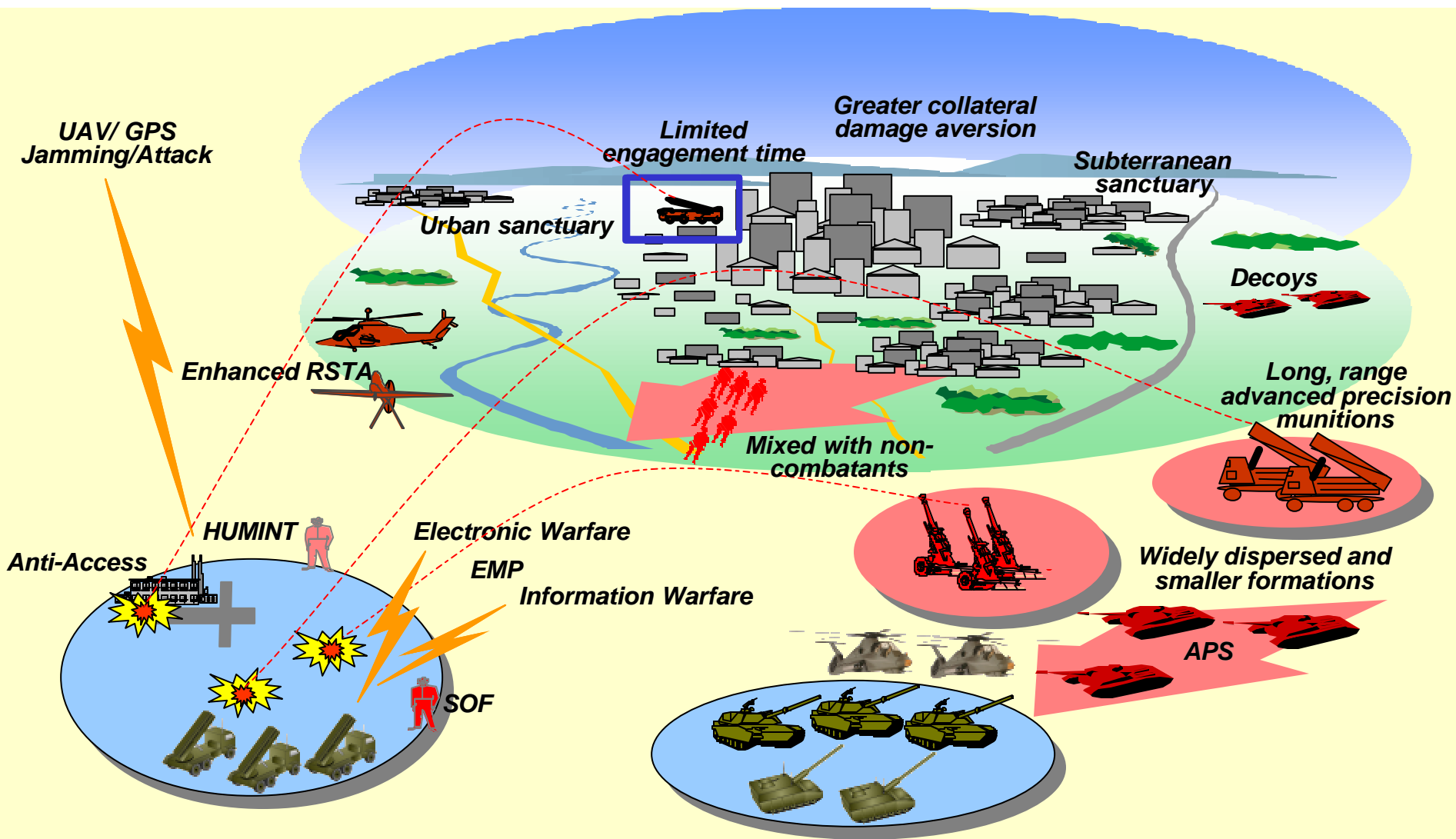
- Mortar and artillery attack
- Rocket and missile attack
- SOF attacks
- Enemy direct fires (mounted and dismounted)
- EW- Jamming of comms, radars and GPS
- EMP
- WMD/E



Transforming Fires  
for the 21<sup>st</sup> Century



# New Paradigm Challenges



Transforming Fires  
for the 21<sup>st</sup> Century



# ... Require These Types of Capabilities

Capabilities are a product of both delivery systems and munitions. Field artillery provides three types of effects in the target area:

- ✓ Area - conventional and precision
- ✓ Point - precision, smart, and discriminating
- ✓ Special - lethal and non-lethal (i.e., smoke, illumination FASCAM, etc.)

## *Precision Munitions*

Capable of self-locating and maneuvering to a specific location with an accuracy sufficient to yield a high probability of destruction within its inherent capabilities

## *Smart Munitions*

Self-contained capability to search, detect, acquire, and engage individual targets by detecting the general target characteristics in order to provide terminal guidance for the munition or sub-munitions

## *Discriminating Munitions*

Self-contained capability to search, detect, acquire, and engage individual targets by distinguishing specific characteristics of the target to selectively identify and engage only the desired target types

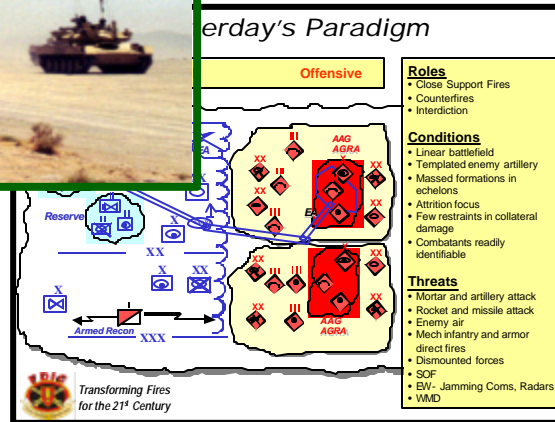


Transferring  
for the 21<sup>st</sup> Century



# . . . for All Target Sets in All Terrains

## Open, Rolling



## Complex (Vegetation)



## Urban



## Complex (Mountain)



Transforming Fires  
for the 21<sup>st</sup> Century





# *. . . Some Things are Enduring*

## *Close Support to Decisive Operations*

Attack of enemy troops, weapons, or positions to destroy enemy forces in close combat as part of decisive operations and to fix or suppress to enable freedom of maneuver for tactical assault

## *Offensive Counter Strike*

Focused preemptive destruction of the enemy's total strike capabilities (indirect fire and ADA), C4ISR, support systems, and logistics areas. Reactive counterfire is a subcomponent.

## *Shaping Fires to Set Conditions*

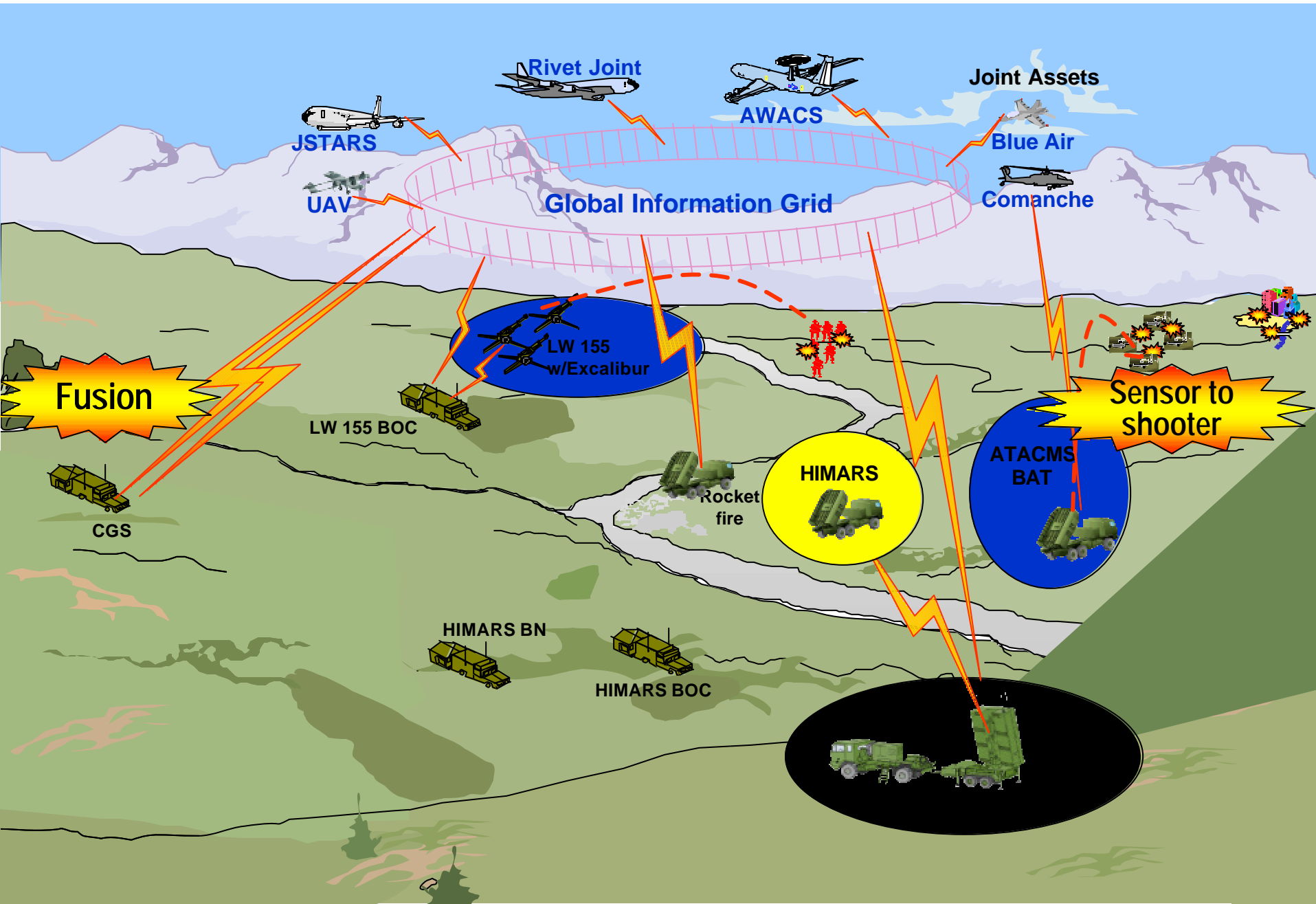
Attack of enemy forces beyond the close fight to: set conditions for decisive operations by destroying forces at depth, isolating the current close fight, and shaping the next fight



*Transforming Fires  
for the 21<sup>st</sup> Century*

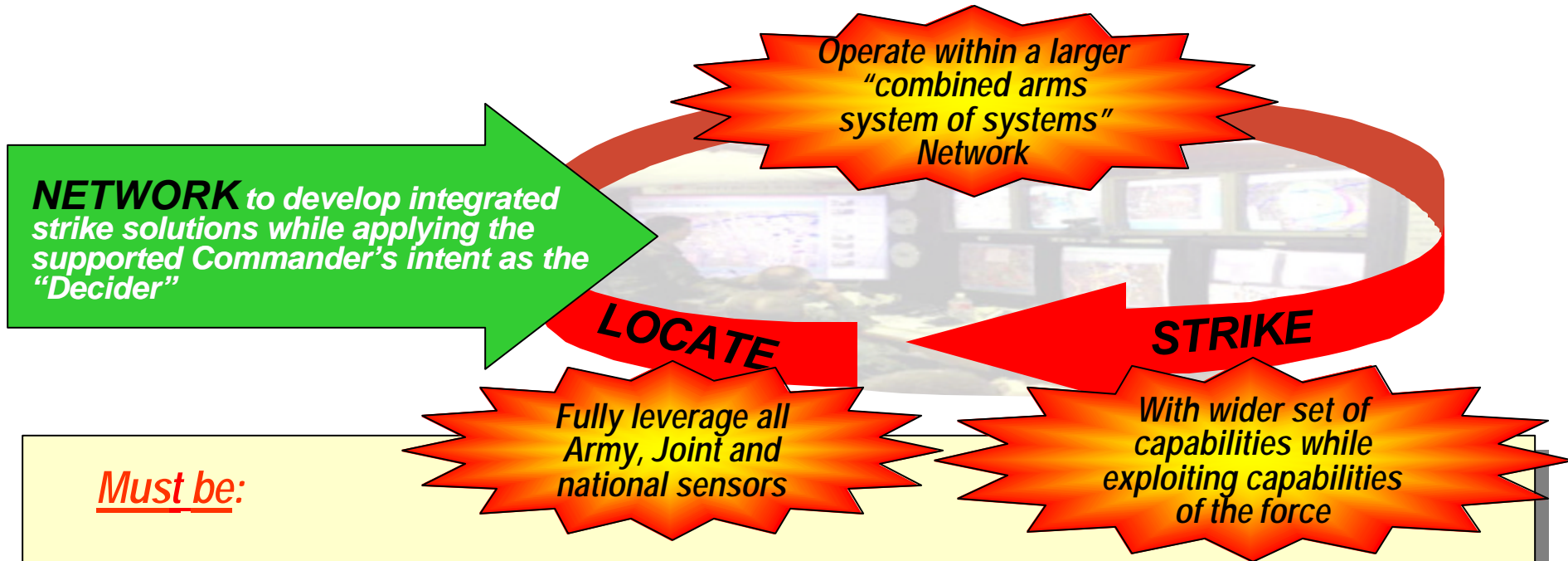


# Networked Precision Engagement





# Networked Fires Qualities



## Must be:

Networked.....To establish, alter and terminate joint, coalition, and Army C4ISR, fires and effects, and logistics in real-time

Responsive.....To any echelon by continuously streaming target data from sensors to shooters that can generate the required effects

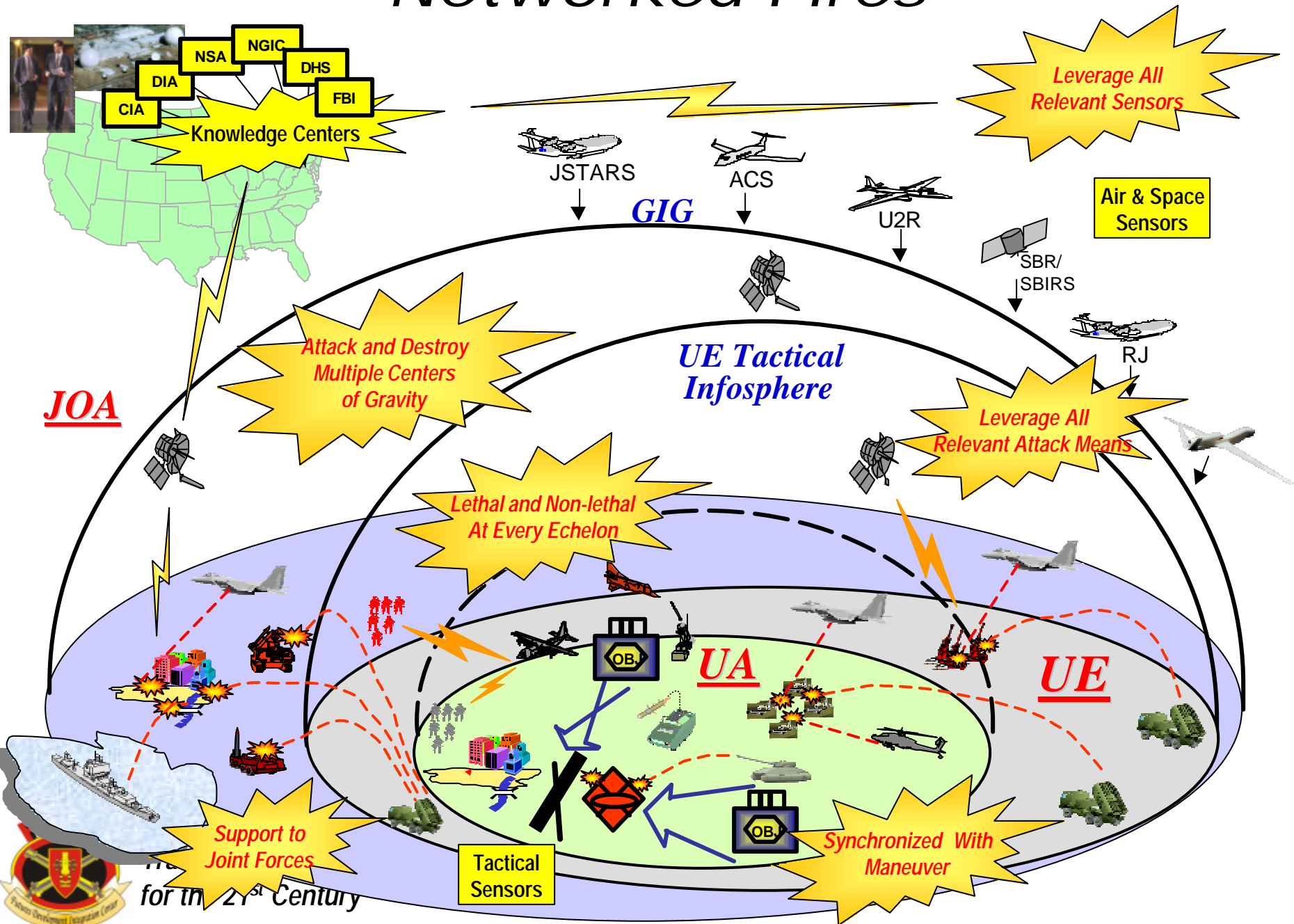
Decentralized.....To dynamically apply overmatching fires and effects at any echelon from organic or external support

Agile.....To provide fully integrated, scaleable, precision fires--immediately upon demand to enable synchronized maneuver and fires

Lethal/Non-lethal.....To provide a broad range of effects to destroy, disrupt, disorganize, isolate, fix and suppress in any environment

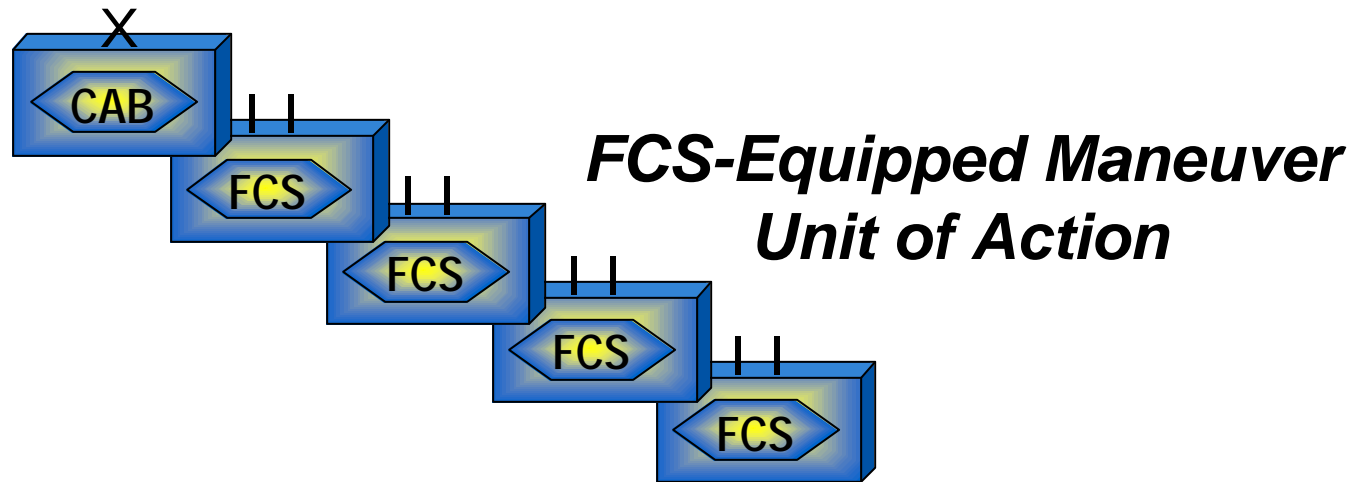


# Networked Fires





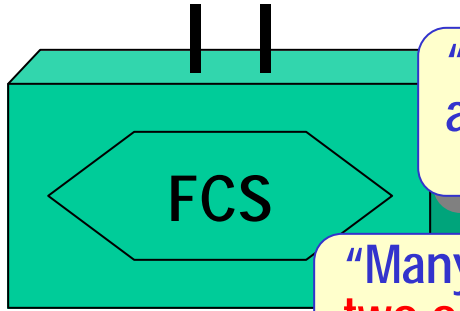
# Objective Forces



*Transforming Fires  
for the 21<sup>st</sup> Century*



# Satisfying NLOS Requirement for FCS



"Key enablers include **organic** line of sight, beyond line of sight, and **non line of sight** fires."

CSA Objective Force White Paper

"Many FCS platforms will be **multifunctional and modular**, combining **two or more tactical functions** such as assault and **indirect fires**, . . ."

FCS Mission Needs Statement

- ✓ What is range requirement for organic NLOS fires capabilities in the Combat Battalion to execute the operational concept?
- ✓ Does the system require all the effects capabilities of today's systems up through the DS Battalion?
- ✓ Is it acceptable to have more than one system meet the requirement?
- ✓ What is technologically feasible—by when?
- ✓ Is it acceptable for the battalion to depend on external support for part of the required capabilities?
- ✓ If so, which one(s), and what are the operational impacts?



IAV Based 120MM Mortar



FCS Based NetFires



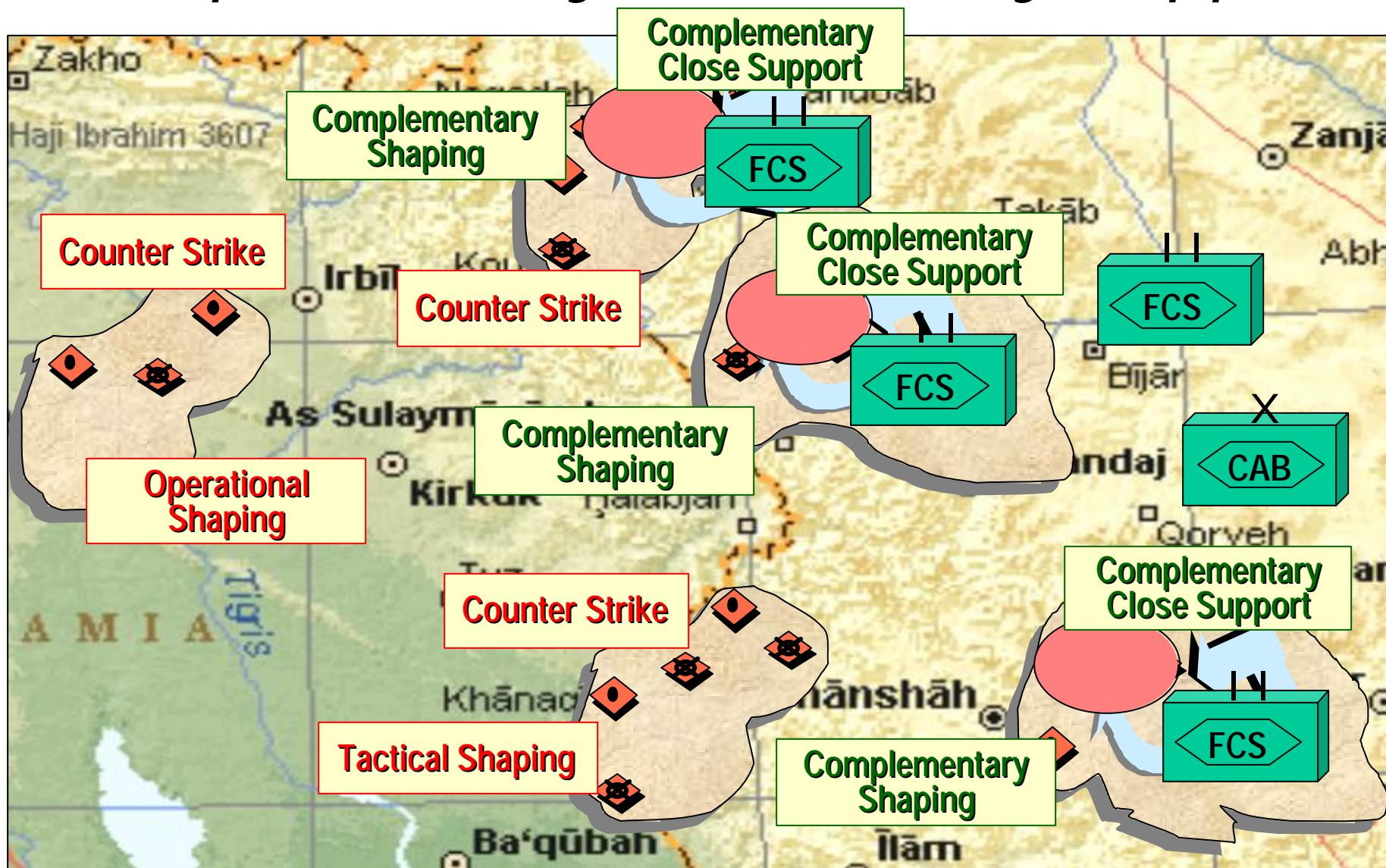
Multi-functional  
Cannon



Trans  
for the 21<sup>st</sup> Cen



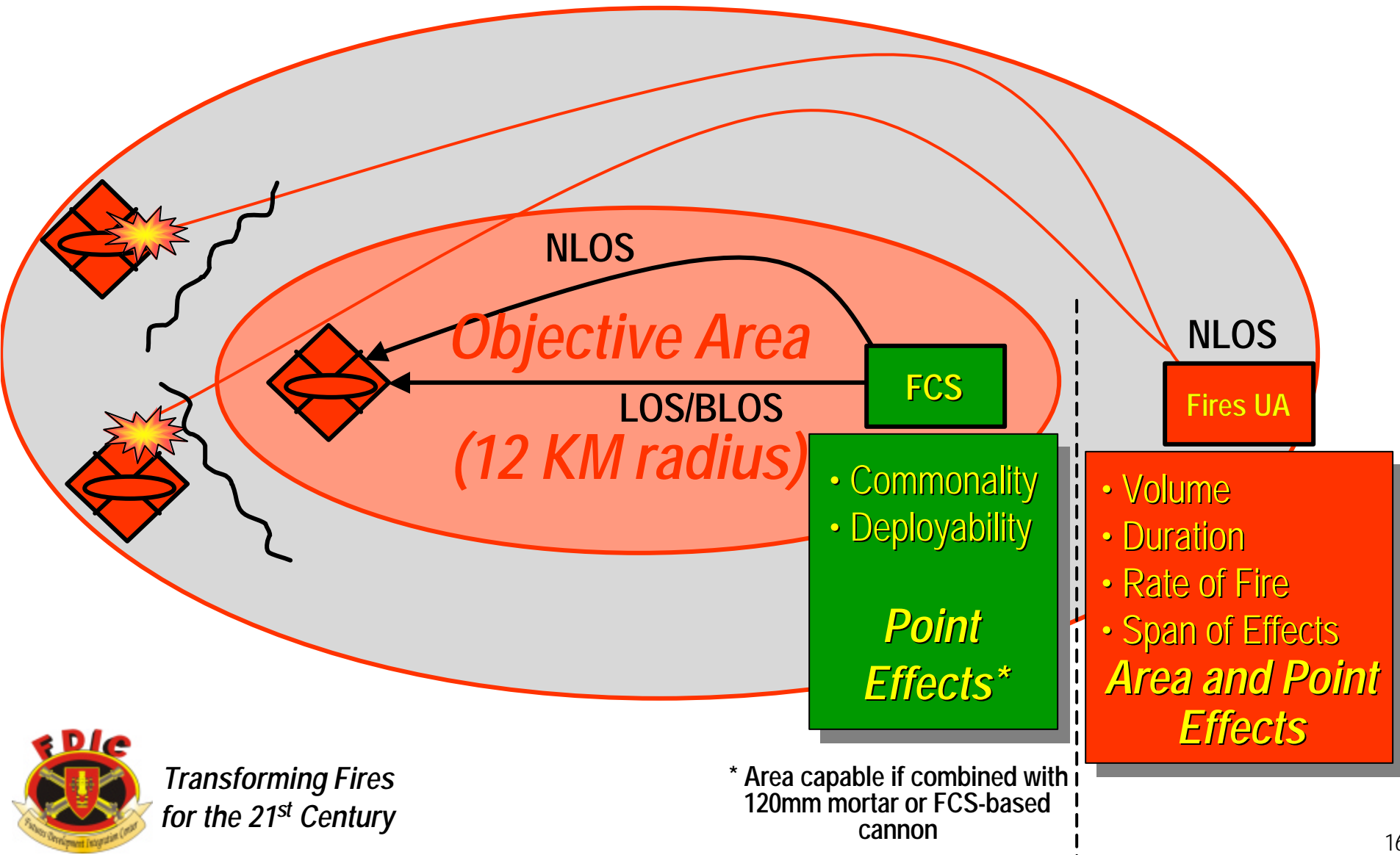
# Complementary and Primary Support



Transforming Fires  
for the 21<sup>st</sup> Century



# Synergies of Organic and External Capabilities



Transforming Fires  
for the 21<sup>st</sup> Century



# *ATWG Fires*

- ❖ **Must have a wide range of Army and joint capabilities to engage any target set, in any terrain, and responsive to any echelon.**
- ❖ **Need an organizational element that enables execution centric, horizontal integration of lethal and non-lethal effects at UA, UE, and JTF levels**
- ❖ **Need a broader spectrum of non-lethal technologies optimized for the lower end of the conflict spectrum**
- ❖ **Need enhanced battle command functionality that enables networked fires to leverage all relevant sensors and effects capabilities in an optimized manner appropriate to the operational environment**



*Transforming Fires  
for the 21<sup>st</sup> Century*



# *Conclusions*

- ➔ **Fires will play a major role in enabling Interim and Objective Force concepts and operations**
- ➔ **Objective Force concepts demand a wide variety of effects capabilities from fires systems and munitions**
- ➔ **We believe the FCS Combined Arms Brigade needs cannon, rocket and missile capabilities in some support or organizational arrangement to be most effective**
- ➔ **Our concepts for a mission-tailored Fires Unit of Action are solidly nested with emerging Objective Force concepts to fulfill the need for those capabilities**



*Transforming Fires  
for the 21<sup>st</sup> Century*



